AMERICAN SOCIETY FOR MICROBIOLOGY

# Plasmids and the Spread of Antibiotic Resistance Genes

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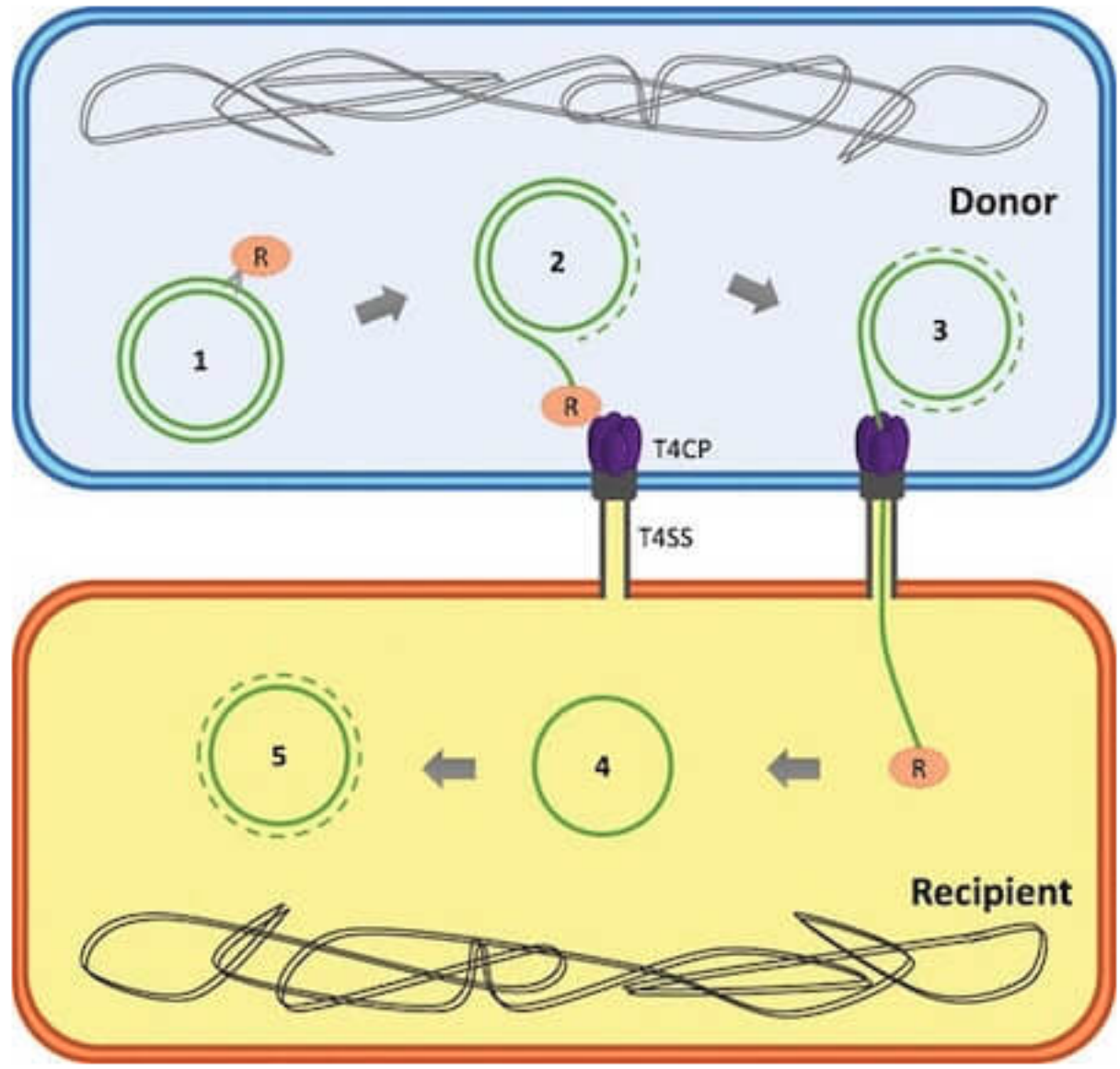
Though the harnessing of antibiotics is one of the most significant human innovations, their efficacy is continuously eroded by the craftiness of their microbial targets. Once a single bacterium mutates to become resistant to antibiotics, it can transfer that resistance to other bacteria around it through a process known as horizontal gene transfer. One of the main vehicles for gene transfer among bacteria are small circular pieces of DNA, or plasmids. Plasmids can be transferred through direct physical contact between bacteria in a process known as conjugation, which helps bacteria share their antibiotic resistance genes with their neighbors.




Transfer of a plasmid (green loop) between two bacterial cells through the process of conjugation.

Source: Getting et al./Microbiology Spectrum, Jan. 2018